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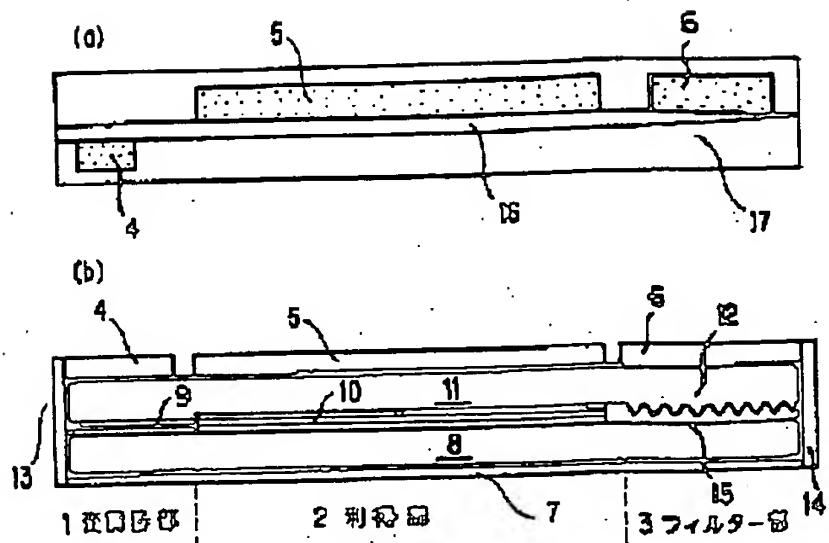
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TITLE : SEMICONDUCTOR MODE
 SYNCHRONIZING LASER



ABSTRACT : PROBLEM TO BE SOLVED: To expand a range of repetition frequency of pulse and suppress wavelength chirp by providing an optical filter of an embedded waveguide laser adjacent to a light outgoing end face, and reducing mesa width within a specific range or less in the light outgoing direction.

SOLUTION: An optical resonator is formed by integrating on the same semiconductor substrate made of InP, a semiconductor gain part 2 in which a waveguide has an optical gain, a semiconductor modulator 1 in which an optical absorption coefficient or an optical gain coefficient changes due to application of voltage or current, and an optical filter 3 provided with a uniform grating 12. The optical filter 3 is arranged adjacent to the light outgoing end face, and the mesa width of a mesa stripe 17 is reduced within a range of 3 micron or less in the light outgoing direction. Thus, the range of repetition frequency of pulse can be expanded and wavelength chirp be suppressed as well.

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